9258

NETWORK WORKING GROUP
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E. Harslem
Rand
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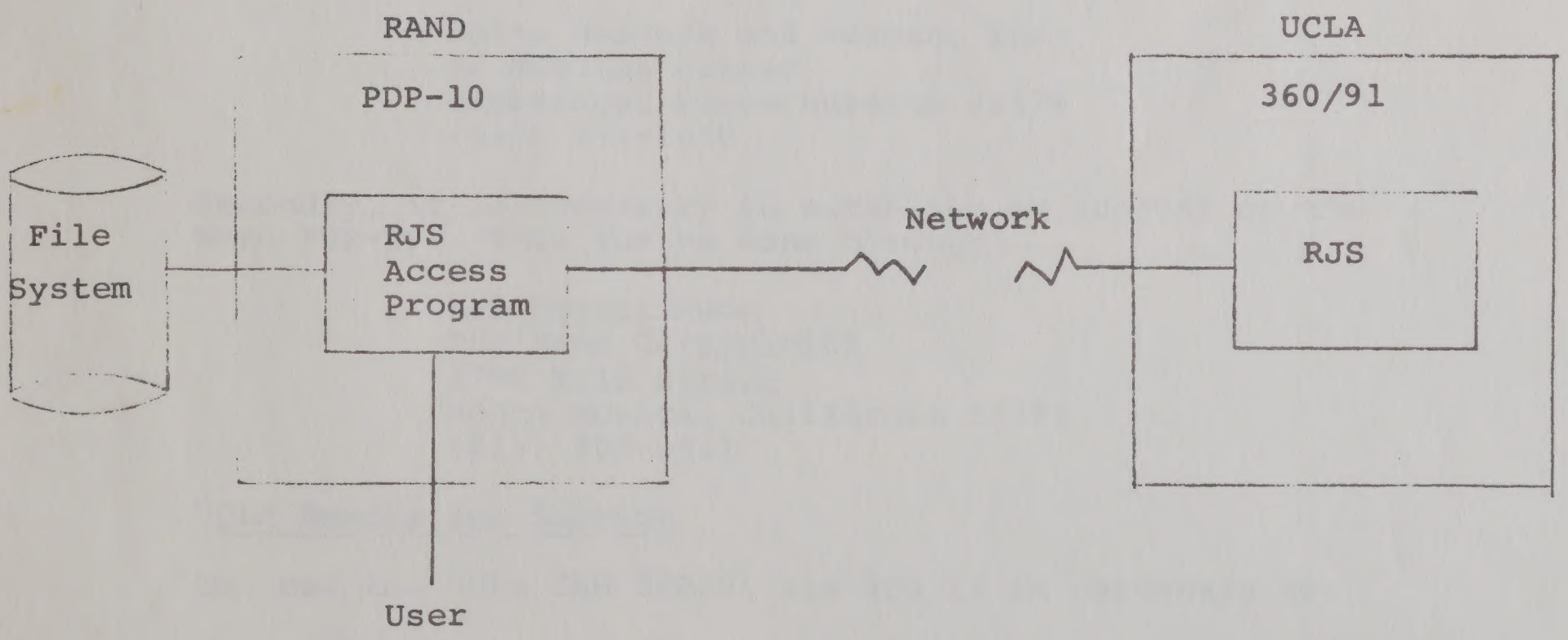
USING NETWORK REMOTE JOB ENTRY

OVERVIEW

As has been mentioned in previous RFCs and at previous Network meetings various groups at Rand have been doing RJE to remote Network sites (UCSB and UCLA) for over a year. Until recently all this work has been done from our IBM 360/65 which is only a Network using host (not a server). Recently our PDP-10 has come onto the Network as both a user and server host. We now have, as well, a program on the PDP-10 allowing access to the Remote Job Service (RJS) at UCLA. Our normal mode of operation is diagrammed below.



To use RJS the user creates a job source "deck" in the Rand File system. He then instructs the RJS Access Program (RJSAP) to send that file (job) to RJS. (Sample session below.) He can then monitor the status of his job via RJSAP (and hence RJS) and ask that RJSAP retrieve his print output to a local file, (or directly to his console, the line printer or whatever).

Recently, several people at other Network sites have expressed an interest in using RJS. However, they are located at a minimal Host or at a host not providing RJS access. Since the Rand PDP-10 is a Network server, these people can solve their access problem by logging onto the Rand PDP-10, using Telnet, and running the RJSAP themselves. The remainder of this RFC describes the steps necessary to run that program.

The Rand PDP-10

The Rand PDP-10 operates under the Tenex operating system. Thus, some understanding of the Tenex Executive is required. The necessary documents can be obtained from the developers of Tenex:

Bolt, Beranek and Newman, Inc.
50 Moulton Street
Cambridge, Massachusetts 02138
(617) 491-1850

Secondly, it is necessary to establish an account on the Rand PDP-10. This can be done through:

Rod Fredrickson
The Rand Corporation
1700 Main Street
Santa Monica, California 90406
(213) 393-0411

UCLA Remote Job Service

To use the UCLA IBM 360/91 via RJS it is necessary to:

1) have an account at UCLA
2) have an assigned RJS terminal ID.

These can both be obtained from

Bob Braden
UCLA
Math Sciences Building
3531 Boelter Hall
Los Angeles, Calif. 90024 (213) 825-~~2543~~ 7518

The RJS Access Program (RJSAP)

A sample session using RJSAP is attached below. The RJSAP is started by typing "RJS↵" to the Tenex executive. The program will then initialize and check (via your login information) to see if you are a user recorded in its tables. This is done to assure you have a valid RJS terminal ID. If your ID is not found, the program will terminate with appropriate message.

If your ID is found, RJSAP will attempt to connect to RJS. If UCLA is down, a message to that effect will appear and the program will terminate. If UCLA is up, RJSAP will connect you to RJS and sign-on your terminal ID (see RFC 189). RJSAP will respond "YOU ARE CONNECTED TO RJS."

At this point RJS will acknowledge your signon and print out messages regarding system status.

The programs (RJSAP and RJS) are now ready to perform RJE functions. All commands are initially interpreted by RJSAP. They are listed and explained below.

1. Help

   If the user types "?" RJSAP will echo the "?" and list the valid set of commands (see below).

2. Message to RJS

   If the first character of a command is a "/" all subsequent characters up to a "return" are transmitted to RJS on the operator input connection. See RFC 189 for the syntax and semantics of these commands.

   An operator input message can be cancelled with the RUB OUT key or backspaced using BACKSPACE.

3. Send a Job

   When the user types "S" RJSAP echoes "SEND SOURCE DECK FROM FILE." The user then enters the file name containing his job followed by a "return." Obviously the file must already exist. If the file is ok and is transmitted successfully, both RJSAP and RJS will print an acknowledgment on the user's terminal (see example below).

4. Retrieve Job Output-Printer

The user can retrieve printed output by entering "PR ". RJSAP will echo "PRINT OUTPUT TO FILE ". The user then enters the file name where he wants the output. This can be a new file or even a device such as the printer or teletype. When the print output is completely received, the RJSAP will print an acknowledgment (see example).

5. Retrieve Job Output-Punch

This function is currently not implemented, pending a decision on the use of this channel between a PDP-10 and a 360.

6. Transmission Status

For long transmissions of job input or output it may be desirable to check on the progress of the transmission. Typing "R" will cause RJSAP to echo "REPORT ON TRANSMISSIONS -- ", followed by a record count for the job input and printer output channels.

7. Termination

If the user types a "Q" at the start of a command, RJSAP will echo "QUIT IN PROGRESS" and terminate. This is the preferred way of terminating the program. (Rather than just ↑C).

NOTE: Since RJSAP has not been extensively used, we expect it to be improved and modified in the future. Thus, the last section of this RFC -- the explanation of the use of RJSAP -- will be kept in file <HARSLEM>RJSACCESSPROGRAM.EXPLANATION on the Rand PDP-10 and be updated appropriately.

Sample Session

What follows is a sample session using RJS from RJSAP on the Rand PDP-10. All user inputs have been underlined.

```
 TENEX 1.28, PAND EXEC 1.33.1
@LOGIN
(USER) JHARSLEM
(PASSWORD)___
(ACCOUNT #) 1
 JOB 12 ON TTY10 25-FEB-72 11:12
@PJS

RJS REMOTE ACCESS PROGRAM

HELLO ERIC

YOU ARE CONNECTED TO RJS
 NRJ876I NETWORK REMOTE JOB SERVICE READY
RJS750I TERMINAL NETRAND  HAS SIGNED ONTO RJS
RJS652I INFORMATION ALERT -
RJS650I OS COLDSTARTED 4:30 PM 24 FEB ALL JOBS IN SYS LOST AND MUST BE R
**RESUBMITTED
RJS650I OS COLDSTARTED 11:07 FEB 25, ALL JOBS LOST MUST RESUBMIT_
?
VALID COMMANDS ARE:
SEND A SOURCE FILE
PRINT OUTPUT RETRIEVAL
PUNCH OUTPUT RETRIEVAL
REPORT ON STATUS OF TRANSMISSIONS
PRECEDE RJS OPERATOR COMMANDS WITH A SLASH
QUIT TO TERMINATE THE PROGRAM
/STATUS JOBS
RJS804I TERMINAL NETRAND  HAS NO JOBS ACTIVE
/STATUS LINES
RJS800I TERMINAL GSM      ACTIVE ON LINE1
RJS809I PUNCH REROUTE = ENGR
RJS800I TERMINAL ENGR     ACTIVE ON LINE2
RJS800I TERMINAL CSCSRC   ACTIVE ON LINE7
RJS800I TERMINAL NETRAND  ACTIVE ON LINE8
SEND SOURCE DECK FROM FILE TESTA.;1
TESTA.;1 TRANSMITTED TO RJS
26 CARDS SENT
RJS534I JOB MES727DS ACCEPTED BY RJS - 000027 CARDS READ
/STATUS JOBS
RJS810I TERMINAL NETRAND  HAS THE FOLLOWING JOBS IN RJS
RJS812I MES727DS SPL(A) 001
```

Rand Exec Prompt

User Logs In

System Acknowledges User Starts RJS Access Program

RJS Recognizes Terminal ID and Prints System News Messages

User asks for Valid Commands

User Sends Message to RJS asking Job Status
User asks RJS to show Active Users

User Sends Job to RJS Both Access Program and RJS Acknowledge Job Submission

User Asks Job Status And Sees his job being Spooled.

(Sometime Later)

/STATUS JOBS
PJS812I TERMINAL METRAND HAS THE FOLLOWING JOBS IN RJS
PJS812I MES727DS XEQ ###

User Checks and
Finds his job ready

(Sometime Later)

/STATUS JOBS
PJS812I TERMINAL METRAND HAS THE FOLLOWING JOBS IN RJS
PJS812I MES727DS PRT ###
PRINT OUTPUT TO FILE LPT: [CONFIRM]

User sees job
has been run--print
output ready
User asks for output
directly to printer

REPORT ON TRANSMISSIONS--
NO SEND IN PROGRESS
PRINT TO FILE LPT: RECORD COUNT= 88
LPT: RECEIVED 197 PRINT LINES
QUIT IN PROGRESS
BYE,BYE BANANA
@LOGOUT
KILLED JOB 3, USER HARSLEM, ACCT 1, TTY 10, AT 2/25/72 13##
USED #:#:21 IN 1:12:52

User checks to see
the print retrieval
running

Access Program Acknowl.
User Terminates
Access Program

User Logs Out